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ABSTRACT

Information, perceptions, and predictions from a variety of sources are brought together in this document to help guide planning and decision making at Monroe Community College (MCC). The first section examines national events and trends with implications for the future of MCC, including employment projections; educational norms; data on community colleges, high schools, proprietary schools and their students; trends in business, manufacturing, and international trade; information on consumer use of telecommunications; and population trends. The next section offers information on New York State, reviewing demographic and educational trends, community college student characteristics, and institutional characteristics. Next, data on Monroe County and the city of Rochester are provided, including profiles of county demography; manufacturing, business, and industry; involvement in international trade; economic development initiatives; and quality of life. The final section examines MCC in terms of enrollment, part-time students, full-time equivalent enrollments, geographic origins of students, non-credit programs, graduates, faculty characteristics, minority enrollment, facilities, accreditation, articulation agreements, and private fund raising. Results of a survey of job vacancies in Rochester are appended. (ALB)

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ENVIRONMENTAL SCAN
A STRATEGIC PLANNING DOCUMENT

Monroe Community College
Rochester, New York
May, 1989

Frances Osborn
Assisted by
1989 Strategic Planning Committee

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ENVIRONMENTAL SCAN
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Monroe Community College
Rochester, New York
May, 1989

There is a Japanese saying to the effect that "to the frog at the bottom of the well, there is a three-foot sky."

For those of us involved in higher education in a community college in Rochester, New York, the world has to be larger than three feet. Forces far from us will have a powerful impact on our small piece of sky.

This environmental scan is an attempt to pull together from a number of sources: information, perceptions, and predictions that can help guide our planning and our decisions.

The factors that produced success and quality in one period, may not work in another. Ralph H. Kilmann, University of Pittsburgh, notes that many of the best-run companies described in the 1982 book In Search of Excellence have encountered serious trouble recently. Methods that produced success in the past may mean failure when conditions are transformed by governmental forces, economic fluctuations, global competition, and new technology. The same holds true for colleges.

We've arranged data in four parts--national, New York State, Monroe County, and Monroe Community College, thus, increasingly narrowing the focus. Each section is introduced by a brief narrative. Not surprisingly, persistent themes flow through each. Just as no man is an island, neither is an institution.

Nevertheless, each unit--nation, state, county, and college--has aspects that are unique and require particular responses.

This scan is an initial effort that we plan to update and refine periodically. We welcome your help. Please contribute your data and suggestions.

Frances P. Osborn
Associate Vice President
Institutional Advancement
May, 1989

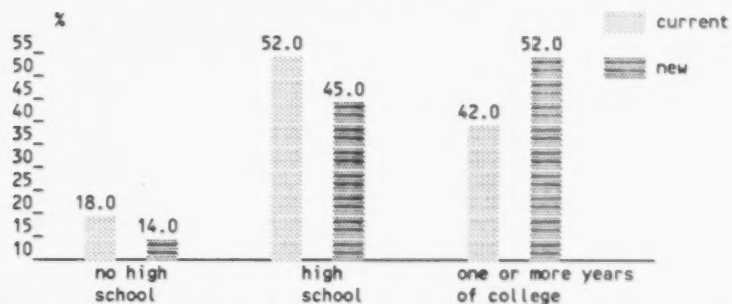
NATIONAL

NARRATIVE: NATIONAL

National and international events seem removed from our piece of sky, but obviously are not. For example, the formation by 1992 of the European Community is likely to have a major effect on Rochester. Our region now exports more than all but ten other states. That amounts to 42% of New York State's total exports. When we find that large companies are scrambling to establish plants overseas to take advantage of the large free-trade European Community market, we can assume there will be a significant effect on Rochester jobs.

Similarly, when the U. S. Department of Labor tells us that blacks and Hispanics will represent 47% of the growth in the labor force between now and 2000 and we realize that 24% of black and 40% of Hispanic students drop out of high school, we know we must make profound changes in our education systems. The situation is made more urgent because the economy increasingly needs workers with higher levels of education and sophisticated skills. Even now in Rochester, 80% of jobs require post-secondary education.

PERCENTAGES OF CURRENT AND NEW U.S. JOBS IN
OCCUPATIONS CLUSTERED BY TYPICAL EDUCATION LEVELS
from "Workforce 2000"



Also, technological change demands constant education and adaptation for the existing work force. Our college's corporate services and non-credit areas reflect this and are growing rapidly. The number of people involved has doubled since 1985-86.

The attached data note some of the factors relative to education in general and community colleges in particular: minorities, business and industry, and others.

We find college students are older and take longer to complete their degrees. We may have more high school graduates than we

think, if we factor in General Education Diplomas (GED). All levels of the education system must be more successful with minority students. Business/industry/education/national success are inextricably bound together.

DATA: NATIONAL

Education The median income for a couple with college degrees is \$61,130; with high school educations, \$36,888. College-educated people spend a considerably larger percentage of assets on housing, reading, and education of their children, take a greater part in community and civic affairs, attend cultural events, participate in the arts, and receive greater satisfaction from their work.

Of the 12M college students in the U.S., 24% are 30 +.¹

Public education is a \$150B a year business, but the federal government spends only \$100M on research to support it--less than 1%. At least \$300M should be appropriated for research on school and classroom organization, learning theories and instructional techniques, and emerging educational technologies. By comparison, Xerox invests 7% in research and development.²

According to a Center for Education Statistics study³ fifty-one percent of bachelor's degree recipients took more than 4 years from high school graduation to complete their degree. Though three-fourths earned their degree within 5 years after high school graduation, 24% took 6, 7, or more years.

In 1990, the Census Bureau will change the way it computes education attainment. Since 1950 the question has been "What is the highest grade of regular school this person has ever finished?" People with 12 years of school were designated "high school graduates" and those with four years of college, "college graduates." This has not been an accurate indicator, since many high school dropouts receive GEDs (certificate of general educational development); people take more than four years to finish college, and of people who said they had attended graduate school, only 58% had a graduate degree.

Only 72% of earned doctorates in the U.S. in 1986 went to U.S. citizens.

Ninety-one percent of American parents believe a college degree is important in advancing one's career, but

- only half have even a remotely accurate idea about the level of college costs
- only one-third know the academic preparation their children need for college
- only those who once received financial aid themselves know anything about the subject and do not consider loans a form of financial aid

- most expect their children to work part-time and during the summer once they are in college⁴

In 1990, for the first time in U.S. history, more women will graduate as physicians than as nurses.⁵

One factor in a child's family background, above all others, determines his or her future economic success...the mother's level of education. Every additional grade of schooling for the mother...is associated with an extra half-grade of achievement for her children.⁶

Community Colleges Today, there are 1,224 community colleges, of which 162 are privately operated. In 1945-46 there were 648, with 333 private. There are 300,000 community college faculty.

Fall, 1988, community college enrollment was 5.26M, a 4% increase over 1987. Forty-one percent of all undergraduate students in the U.S. attend two-year colleges; fifty-one percent of all entering first time freshmen.

Community college students in 1986, the last year for which comprehensive data are available, were:

78%	white
10%	black
7%	Hispanic
4%	Asian
1%	Native American

The number of students attending part-time has steadily increased:

<u>1986</u>	<u>1980</u>	<u>1976</u>	<u>1970</u>
63%	62%	54%	48%

Part-time enrollments will increase by seven percent through 1992, while full-time students at community colleges will decline by 10%. [Center for Education Statistics]

The average age of students in for-credit classes at public community colleges is 28.

The higher the academic credential, the higher the average income. Overall, associate's degree recipients earn 29% more than high school graduates who do not continue their education. Blacks with associate degrees earn 51% more than blacks with high school diplomas. Women with associate degrees earn 40% more than women with high school diplomas. [Bureau of the Census, 1987]

Nationally, 7.8% of community college students already have bachelor's degrees.

Associate degree completion rates for open admissions students:

	16%	after 4 years
another	16%	after 5 years
another	<u>11%</u>	after 11 years
Total	43%	

High Schools In 1986, one out of seven high school diplomas awarded were GED. [American Council on Education] Each year one million students leave school without graduating. Nationally, that means one out of every four students fails to graduate from high school--a trend that has not changed in the last 20 years.⁸ The dropout rate is 22% for students in the lowest socioeconomic status quartile; 7% for those in the highest.

One-third of the adult population is functionally illiterate: 60% of prison inmates, half the heads of poor households, one-third of mothers on welfare, and an estimated half to three-quarters of the unemployed. It costs \$24,000 a year to incarcerate a prisoner; \$3,400 a year to finance a college student. It's instructive and depressing to contemplate the amount we invest per year in building and maintaining prisons vs. colleges.

By 2000 we will not have a labor shortage but a skill shortage, with more jobs than people qualified to fill them. [former Sec'y of Labor William E. Brock]

Proprietary Schools Three-fifths of proprietary school students come from families with incomes of less than \$10,000.⁹ Fifteen percent of proprietary school students were black. Nearly half of proprietary school students were in vocational programs in high school.

One-third of the students pay tuition of \$3,000 or more, and one-fourth financed their educations with loans of \$2,500 or more. In contrast, one-fifth of public two-year students paid less than \$250, and 90% of the students had no loans at all.¹⁰

Minorities According to the latest projection by the Census Bureau, minorities in the U.S. population will be:

By	1990	16%
----	------	-----

2000	17%
2010	19%

These projections only take whites, blacks, and other races into account. Hispanics, an ethnic minority that is 94% white, do not show up in these projections.

When white Hispanics are subtracted from the total white population and included with blacks and Asians, the nation's minority population increases dramatically:

By	1990	23%
	2000	26%
	2010	29% ¹¹

By the year 2000, 42% of all public-school students in the nation will be members of minority groups.¹² In 1987, 46% of Texas school children were minority.

Of all minority students, 47-75% are enrolled in non-academic high school programs or tracks.

Among the 806,000 legal Spanish-origin immigrants who entered the U.S. between 1980-85, 21% were high school graduates--an untapped source for postsecondary institutions.¹³

The supply of minority teachers is slipping rapidly. Blacks are projected to account for only 5% of the teaching force in 1990.¹⁴

Less than 10% of all degrees awarded in biology, computer science, mathematics, engineering, physical science, and health-related fields were attained by black, Hispanic, and Native American students.¹⁵ Of 804 doctorates in math in 1987, 4 went to blacks.¹⁶

The average age of whites is 35; blacks, 25; Hispanics, 22.

Business and Manufacturing

For the labor market, the 21st century started last September, when the graduates of the year 2000 entered first grade.

The half-life of an engineer's knowledge today is five years. In 10 years, 90% of what an engineer knows will be computer-related. [Cetron]

Only 10% of the costs of most automation projects - in the office and in the factory - are for capital goods, such as computers or robots. Fully 90% of automation costs are for information services and products, including software, systems analysis, and employee training.¹⁷

Corporations spend \$80 billion a year in employee education and retraining; this amount will double by 2000. Most jobs of the future will be restructured every seven years, requiring constant business investment in education and training. We can expect to spend the equivalent of 20% of an employee's lifetime earnings on training, more than we'll spend on employee health care costs.¹⁸

One-half of all funding for formal training will come from 200-300 large companies, but most new jobs will be generated by small businesses that cannot afford to pay for training.

Fifty-six percent of U.S. women were in the work force in 1987.

Research and development outlays as a percent of gross national product have been rising steadily since 1978, most rapidly in electronics, aerospace, pharmaceuticals, and chemical industries.

Twenty-four percent of black students and 40% of Hispanic students drop out of high school, yet blacks and Hispanics will represent 47% of the growth in the labor force between now and 2000.

Seventy-four percent of U. S. retail is east of the Mississippi River.

International Trade

One of two American jobs by 2000 will be trade-dependent. Between 1970-1987, trade between North America and the "four tigers" of Asia (South Korea, Taiwan, Hong Kong, and Singapore) has risen from 1.8B to 87.2B; between North America and Japan--13B to 128.7B.¹⁹

If you want to know what language the world will be speaking next, start watching the trade balance. For the most part, Americans preparing for international trade have been sitting in the wrong language classes. Students still spend their time conjugating Romance verbs. In 1986, college students studying Spanish, French, or German numbered 411,000, 275,000, and 121,000 respectively, according to the Modern Language Association. Nearly 4 million secondary-school students took French or Spanish in 1985.

More Americans study Latin than Japanese, and more suffer through ancient Greek than Chinese. College students studying Japanese or Chinese numbered only 23,000 and 17,000, respectively, in 1986. Only about 14,000 students in grades 7 through 12 took Chinese or Japanese in 1985.

Thirty-nine percent of parts used in U.S. manufacturing are from a different country of origin.

American companies are rushing to manufacture abroad for several reasons:

- Europe and Asia have developed into huge consumer markets. Locating abroad avoids import quotas and other trade barriers for American manufacturers
- Companies hope to avoid possible barriers from the 12-nation European Community, scheduled for 1992

The Commerce Department notes that about 30% of the nation's total exports in recent years has been intra-company shipments, that is, shipments from a Whirlpool or an NCR to their overseas operation, needed parts, or materials to manufacture abroad.²⁰

Telecommunications Fifty-seven percent of U.S. homes have cable TV; the percentage will be 87% by 1992. This could have strong implications for future education delivery. Nearly half the black consumers own a VCR and 41% subscribe to cable TV.²¹

Aging The percentage of U.S. citizens who are 65 or older increased from 16.7% in 1960 to 28.5% in 1985.²² Education will be increasingly transgenerational, as what is considered possible and appropriate for people to do at particular periods of their lives changes.

Elderly Americans have after-tax per-capita incomes that are \$335 higher than the national average.²³ People over fifty make up 35% of U.S. adult population, have 50% of U.S. discretionary income (\$130.5 billion), and have 77% of U.S. financial assets (averaging \$49,270 per household).²⁴

Rather than 17 workers supporting each retiree, Baby Boomers will have three workers generating their retirement funds, and one of them will be a non-white worker.²⁵

Family In 1955, 60% of all households had a working father, a housewife mother, and two school-age children. In 1987, 6% of all households had a working father, a housewife mother, and two school-age children.

More than half of all poor people and 70% of poor blacks are in single-parent families, most headed by a woman. Race is not the primary predictor of poverty; family status is.²⁶

Twenty-four percent of the nation's children are below the poverty line, a group we do not have a high success rate for

educating. Thus, we are destroying our most important resource: "eating our seed corn." [Harold Hodgkinson]

Miscellaneous The Department of Defense indicates they are now recruiting one out of eight able-bodied young males, 18 years of age, to support the all-volunteer service. They indicate that by 1995 it will be necessary to recruit about one out of four if they are to maintain their quotas.

Eighty-five percent of the information on National Institutes of Health computers is upgraded every five years.[Cetron]

NEW YORK STATE

NARRATIVE: NEW YORK STATE

New York State's postsecondary education system is one of its most valuable resources, providing educational opportunities to almost one million students each year in 17,000 registered programs. The college and university facilities plus the tens of thousands of faculty members enhance the state's intellectual, cultural, and governmental life.

But, the postsecondary system must do more. New York State faces a serious skilled worker shortage that can only be met by the participation of people who have not previously been a part of the work force, such as women and minorities, and by upgrading skills of current workers. Work force participation nationally must grow by 4.8%, twice the projected 2.5% rate. New York's increase must be even greater, because New York has lagged behind the national rate since 1970.

PROJECTED NEW YORK STATE JOB GROWTH AND WORKING AGE POPULATION GROWTH 1986-2000

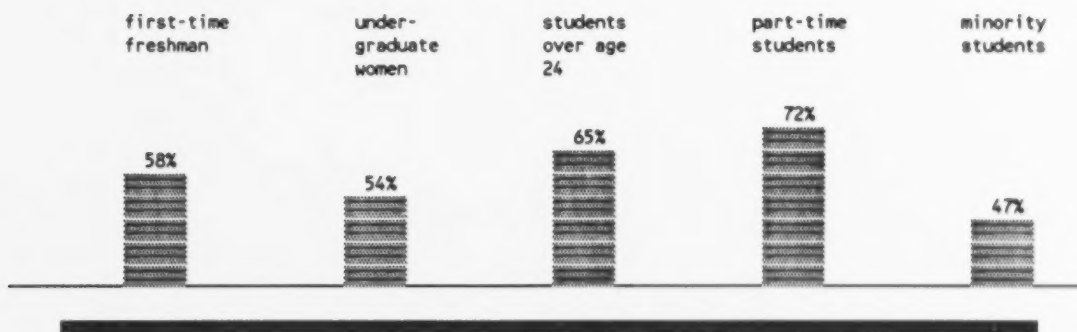
adapted from "Workers and Jobs in the Year 2000: New York State vis-a-vis the Nation"



New York's 30 community colleges, by virtue of their location, accessibility, low cost, and coherent programs of part-time study play a key role.

Men and women with family or job obligations can take advantage of higher education study to acquire the first two years of their baccalaureate or to upgrade current skills. Community colleges currently enroll 73% of female first-time undergraduates over the age of 24 and 65% of all undergraduates over 24.

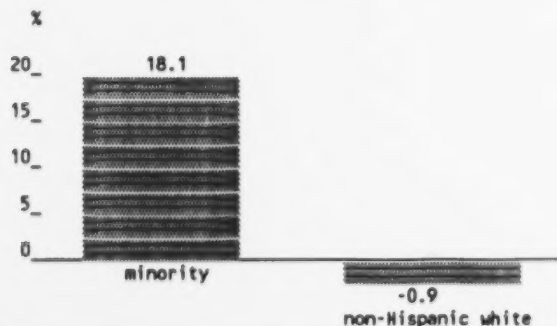
WITHIN THE STATE UNIVERSITY OF NEW YORK
COMMUNITY COLLEGES ARE THE COLLEGES OF CHOICE FOR:



Since one of three New Yorkers will be a member of a minority by the year 2000, it is crucial to encourage minorities in higher education. Again, the community colleges are crucial, for they have traditionally been the college of choice for minority students--currently 47%.

NY MINORITY AND NON-HISPANIC WHITE POPULATION
PROJECTED GROWTH RATES, 1985-2000

adapted from "Workers and Jobs in the Year 2000: New York State vis-a-vis the Nation"



DATA: NEW YORK STATE

Demographics

One of four New Yorkers is a member of a minority group. By 2000 the percentage is expected to be one of three. Although New York is in fifth place in black population gain, it will have the largest black population of all the states in 2000.²⁷

Immigrants, mostly from Latin America and Asia, will account for 23 percent of new workers between now and 2000. One-fourth of the adults will have fewer than five years of schooling and require language, literacy, basic skills, and job training.²⁸

Seventy-five percent of the current work force will have to be retrained to new methods and technologies to meet global competition.

The number of jobs in the state will grow by 16.6 percent, but the working-age population will increase by only 2.2 percent.²⁹

New York Education In the 1987-88 State fiscal year, State funds for the support of higher education totaled \$3.2 billion, 42.8% more than in 1982-83. However, in that same period State revenues grew by almost 60%; thus, higher education support declined 13.4%.³⁰

New York is 45th in the nation in the percentage of youth that graduate from high school. The number of high school graduates in New York State, currently fewer than 200,000, will decline substantially (to 159,000) through 1994.³¹

The annual number of dropouts in New York State is over 49,000; 58% are in New York City and nearly two-thirds are in the State's five largest cities.³²

Currently, thirty-six percent of the school population in New York State is minority. [See Appendix B for projections]

As of Fall, 1986, the last year for which figures are available,

- 11% of SUNY's 366,000 students were minority
- 25% of New York State's population was minority
- 75% of NYS minorities were located in New York City³³

Community College Students

Ninety-seven percent are New York State residents; ninety-one percent live in their college's sponsorship area. Seventy percent are already working in New York's labor force--39% work full-time.

Close to 39% of the credit students were enrolled in business or technology programs. Nine of ten graduates of occupational and technical programs employ their skills within their college's region.

Over 23,000 graduate each year. Sixty-five percent of those who entered the labor market are working in jobs related to their education and earn an average salary of \$15,380.

Between six and seven thousand transfer to senior SUNY systems. Junior-level transfer students are at least as successful (73%) in persisting one year beyond transfer as juniors who began at the four-year school (72%). Nearly as many transfer without an associate's degree as with. A similar situation exists for independent colleges.³⁴

The largest number of students transfer into business programs (14%), education (10.6%), and Social and Behavioral Sciences (9%). But 28% of all transfers enter the four-year college with no declared major.³⁵

Community Colleges

enroll--

- 58% of the freshmen entering the SUNY system
- 54% of undergraduate women
- 73% of female first-time undergraduates over age 24
- 47% of minority undergraduate students
- 50% of black undergraduates

are cost-effective--

- operate at a cost one-fourth less per full-time student than at four-year public colleges

provide training for local business and industry--

- are the state's greatest single provider of firm-specific contract training courses--1,850 firm-specific courses in 1987-88

support local cultural events--

- in 1987-88 sponsored 12,000 social, cultural, public service and recreational events

MONROE COUNTY

NARRATIVE: MONROE COUNTY

Rochester was a high-tech city before the word was coined and still has the largest concentration of high-tech employment in the state--over 20%. It's a city that is highly regarded for its quality of education, health care, environment, cultural advantages, economic and political stability.

Because Rochester industry has been based on technology and invention in instruments, ophthalmic goods, machine tools, electronics, and imaging, it has always relied on a highly educated, trained work force. We have one of the nation's highest percentages of professional and highly skilled employees, over 40%.

Because of this, Rochester has always valued education and supports 16 area colleges. A persuasive argument for prospective industries to relocate here is our ability to supply a skilled, up-to-date work force and an environment that encourages innovation. [See Industrial Management Council report, Appendix A]

High-Tech Rochester, a recently formed organization to encourage imaging companies to locate here, is predicated on Monroe Community College's being able to educate optics technicians, Rochester Institute of Technology's supplying baccalaureates, and the University of Rochester's providing doctorates.

Similar combinations of programs in area colleges and universities offer career ladders in many professional fields in addition to technologies, such as health, education, business, and the arts.

DATA: MONROE COUNTY

Demographics

The metro population is almost a million (989,000); Monroe County--741,000; 90% white, 8% black, 2% other.

Natural population growth in the region will be less than 1% a year for the next decade. Employment, however, is projected to grow 1.3% to 2% a year.³⁶

The number of 16-year olds in the area is dwindling. By 1993 there will be only two-thirds as many as in 1983. Yet, it is estimated that 64% of our employment growth is expected to involve entry-level positions,³⁷ which usually are staffed by this age group.

Manufacturing, Business, Industry

Rochester is a predominately manufacturing community with 29 - 34% of the work force in manufacturing³⁸, compared to 14% nationally.

Each 100 manufacturing jobs creates 700 service jobs. There are 500 firms to provide products and services to larger companies, doing business ranging from \$3 million to \$20 million a year.

Over 20% of Rochester's employees are in high-tech industries, compared to 6% for both New York State and the U.S. In fact, almost 60% of the local manufacturing employees are in high-tech industries (30% for New York State and 25% for the U.S.³⁹)

Eighteen percent of the Rochester work force is in instruments manufacture--the high tech of manufacturing work. Rochester does one-half of the nation's manufacturing in instruments and one-half of that instruments work force is at Kodak.

The main limit to growth in the Rochester area is a lack of qualified workers. Each year more skills and education are required for the jobs in manufacturing companies. In 1989, Rochester manufacturing companies are expected to generate 2,000 new jobs; in addition, currently employed factory workers will put in near-record hours of overtime.⁴⁰

Manufacturing pays higher here than in most U.S. cities. Average weekly pay of production workers in Rochester was \$500 a week, compared to \$396 nationwide.

Companies with fewer than 100 employees provided 45% of Rochester jobs in 1980-87, and 77% of the job gains.⁴¹

Rochester's unemployment rate ranges between 2.5 and 4.0%, which economists consider to be full employment. Some people question

how many additional workers can be drawn from the population not currently in the labor force, and expect an in-migration of new workers to be necessary for the main source of new labor supply.⁴²

International Trade

Rochester is a major export area, responsible for 42% of New York State's exports.

Rochester exports of photo film, sunglasses, electronic equipment, and gear-cutting machinery were \$47,800 per manufacturing worker, compared to \$13,200 nationwide.⁴³

Of Rochester's \$7.5B in exports in 1988, \$3B went to Canada. This is expected to increase as the new free-trade agreement with Canada is implemented.

Economic Development Through Education and Employee Training

In the 1970s and 80s, Rochester companies re-gearred to respond to international competition. This led to layoffs and permanent changes in manufacturing styles. Rochester hit bottom in 1987 after a decline of more than 30,000 workers. By September, 1988, 4,000 manufacturing jobs were regained and we expect a 2,000 increase in 1989.

Meanwhile, the service economy grew at such a dramatic rate that the increase overcame the decrease in jobs caused by manufacturing layoffs.⁴⁴

Kodak this year announced plans to return to its tradition of lifetime employment through: careful hiring and placement, diversifying to soften the impact of downturns, and an elaborate system of employee education and training. In 1988, 29,000 of Kodak's 45,000 employees in the Rochester region took Kodak-sponsored courses and completed 457,000 hours of course work. More than 1,000 courses are available to employees at Kodak through the city schools,⁴⁵ Monroe Community College, and Rochester Institute of Technology.

Education and training support the demands of Rochester's sophisticated work force. No other metro area in the country with 1 million people has 16 colleges. Rochester has very high advanced placement scores and high retention to college. [Harold Hodgkinson says 90%]

Business, industry, and education work closely together. For example, 340 Rochester leaders of business, industry, and professions advise MCC business and technology programs and bring a non-academic perspective to education.

Quality of Life

Rochester is ranked eighth among 329 U.S. cities in Places Rated Almanac. An article in American Demographics rated it #15 in overall livability. Advantages cited are education, clean air, health care facilities, low crime rate, productivity and skill level of the work force, and a wide variety of leisure time activities.

Rochester's educational institutions are essential to the area's sophisticated work force. A large number of the people who attend local colleges and universities choose to remain in the community and contribute to its quality of life.

- 95% of MCC students remain in the community
- Approximately one-fourth of the graduates from the University of Rochester stay in the area, although only 10 percent come from here originally⁴⁶
- one-third of Rochester Institute of Technology students stay, about the same number as come from the area.⁴⁷

Area institutions help existing workers update skills or prepare for advancement. Over 174,000 people have taken courses at MCC alone.

MONROE COMMUNITY COLLEGE

NARRATIVE: MONROE COMMUNITY COLLEGE

In its 27 years, Monroe Community College has contributed to the richness of the intellectual life in the area and to the sophisticated skills of the work force.

An impressive number of the community's teachers, social workers, nurses, technologists, firefighters, police officers, artists, businessmen and women trace their educational roots to MCC.

We have had 34,359 graduates, 95% of whom remain in the community. Also, we have had 174,000 Monroe County people who have studied at the college to enhance their skills or for personal enrichment.

As an example of our educational importance in the community, in 1987-88 there were 33,295 students at the college: 17,638 credit and 15,657 non-credit.

The college plays a vital role in providing the sophisticated work force required by Monroe County. Liberal Arts enrollments have increased from 22% to 33% since 1983-84. Last year, over fifteen thousand people trained in employer-specific courses; 288.67 FTEs (full-time equivalent students). The Finger Lakes Dislocated Workers Project trained 317 people. The Small Business Development Center provided courses, seminars, and individual counseling for 500.

In a joint project with the Monroe County Department of Public Services, MCC enrolls 150 welfare recipients in full-time credit programs. Last fall 12% of the students made the Dean's List and 5% achieved a perfect 4.0 grade average.

MCC's Criminal Justice/Public Safety Training Center provides training for 3,000 police, fire, and Emergency Medical Service personnel each year. The Center, along with the Industrial Management Council, Monroe County, and the City of Rochester designed a program for managing major emergencies and disasters called TEAM (Training for Emergency Action Management) that has trained 2,000 people in the last three years and won national recognition.

MCC's technology programs mesh with those of other area institutions like Rochester Institute of Technology and the University of Rochester, to provide career ladders in areas important to Rochester, such as electronics, imaging, engineering, chemicals, instrumentation, quality and reliability, and industrial security. A good example is MCC's relationship with other education and government agencies in the High

Technology of Rochester organization. [See Democrat and Chronicle article following this section.]

Lennox named chief of High Technology

Agency will work to bring companies to Rochester area

By Phil Ebersole
Democrat and Chronicle

Donald D. Lennox yesterday became president of High Technology of Rochester, and said he'll work to get seed money, low-cost space and business advice for new high-tech companies in the Rochester area.

Lennox, 70, who recently resigned as chief executive officer of Schlegel Corp. of Rochester, said the high-tech development agency will focus on helping businesses in imaging and other technologies that Rochester is strong in.

"We won't flail out in all directions," he said. "I do believe Rochester has great potential for ... embryonic firms in the high-technology field."

High Technology is currently working to bring in Ovonic Imaging Systems Inc., a Michigan-based company that could provide up to 250 new jobs in the Rochester area.

OIS makes flat panel displays that can be used in place of conventional video screens, which use cathode ray tubes. The displays can be used in airplane control panels, laptop computers and television sets.

In a recent reorganization, William Manning, president of Manning and Napier Advisors Inc. of Rochester, increased his ownership stake in the company. J. Montith Estes, a Rochester lawyer and former vice president of Scientific Calculations Inc. of Victor, Ontario County, is expected to become chairman.

But LaserSurge Inc. of Henrietta may be more typical of the kind of companies High Technology will help.

It was incorporated in 1986 by Dr. Jude Sauer, a physician, and Kevin McGuire, an optical engineer from the University of Rochester.

Sauer had developed a means of laser "tissue welding" to replace stitches and sutures.

McGuire said they contacted Kevin Kelley, executive director of High Technology, and Kelley referred them to Jim Witzel, of the Peat Marwick accounting firm.

"They've got some really unique technology," Witzel said. He was able to help them write a business plan, define their potential market and identify potential distributors and manufacturing subcontractors.



Donald Lennox

The current agenda of High Technology of Rochester includes:

- An "incubator" facility to provide low-cost space and shared services for new high-technology businesses. Monroe County Executive Thomas Frey said he has asked for proposals for developing a tract, but wouldn't give details.

The difference between such a facility and a building such as Techniplex Mall in East Rochester is that fledgling businesses would be asked to leave the nest after they become well-established, Kelley said.

The incubator also would provide common services, such as a secretarial pool, common receptionist and telephone switchboard.

- A "seed money" fund of \$1 million to \$3 million for startup high-technology businesses.

New businesses find it difficult to attract investors until they've existed long enough to establish a track record — and it's difficult to survive that long without invested money.

Lennox and other High Technology officials wouldn't say where the seed money is likely to come from.

- Business consulting services for new firms.

Larry Albertson, a co-founder of Verax Systems Inc. and Photographic Sciences Corp. and executive vice president of Applied Image Inc., joined High Technology last month as technical director.

He said many new firms fail because not only are they underfinanced, but they manage money poorly. Good advice can help new firms avoid fatal mistakes, he said.

Heading the high-tech industrial development agency is the fifth, or maybe sixth or seventh, career for Lennox, who lives in Pittsford.

He was a steel mill laborer, U.S. Navy pilot, plant manager for Ford Motor Co., and executive vice president of Xerox Corp., before becoming chief executive officer of International Harvester (now Navistar International Corp.) and then Schlegel Corp.

Directors of High Technology represent Rochester and Monroe County governments, the University of Rochester, Rochester Institute of Technology, Monroe Community College, the Greater Rochester Metro Chamber of Commerce and the Industrial Management Council.

The non-profit agency, the successor to an organization formed in the early 1980s to develop a high-technology industrial park in Monroe County, was reactivated about a year ago. It is supported by both corporate and public funds.

High Technology is located at the Chamber of Commerce offices at 55 St. Paul St. and may be contacted there at 454-2220.

D 4/14/89

DATA: MONROE COMMUNITY COLLEGE

Enrollment Full-time enrollment in the Fall of 1988 was 6,609 students. There has been an increase of 1,000 students in the last three years, after remaining around 5,600 for most of the early 1980's. Part-time enrollment also increased after several no-growth years, but the part-time proportion is at its lowest point since the mid-70's.

Fall, 1988 enrollment: 12,768

Full-time--6,609	
Men: 3,199	Women: 3,410
Part-time--6,159	
Men: 2,550	Women: 3,609

Part-Time Enrollment MCC enrolls approximately 25% of the full-time and 50% of the part-time students from Monroe County who attend college in New York State. Although the growth in full-time enrollments tends to outpace part-time, MCC continues to enroll more part-time students than all other Rochester area colleges, public and private, combined.

Full-Time Equivalent (FTE)	1988--8513.6
	1987--8392.8
	1986--8133.0
	1985--7868.9
	1984--7821.5

Geographic Origins In-state--98.9; out of state--.6; foreign--.5

Market share of recent high school graduates:

	<u>1985</u>	<u>1988</u>
Monroe County Public Schools	14.4%	18.2%
City of Rochester High Schools	10.7	13.4
Monroe County Parochial and Private Schools	17.9	19.8
All Monroe County High Schools	14.4	17.6

Non-Credit Programs

Non-credit programs are in areas such as employer-specific training, community service programs and remedial education.

Persons participating (unduplicated listing)

<u>1987-88</u>	<u>1986-87</u>	<u>1985-86</u>
15,657	11,075	8,818

Growth in non-credit programs is expected to continue:

	<u>% of total FTE</u>
1989-90	17.05
1990-91	18.71
1991-92	19.83
1992-93	20.85
1993-94	21.52

Graduates

MCC is among the top ten associate degree granting institutions in the U.S., according to the American

Association of Community and Junior Colleges.

Percentage of MCC associate degree students graduating in
2 years--14.9; 3 years--15.2

The percentage of our graduates transferring to SUNY units has increased from an average of 40% to a high of 54% for the graduating class of 1988. Of these, 85% transfer to institutions within a 130-mile radius of Rochester.

MCC awarded degrees to 1,729 students at the Twenty-Fifth Commencement in June, 1988. Trends in graduates: fewer career, more liberal arts; more transfers to SUNY units than private schools; the top transfer school for the second consecutive year was SUC Brockport. Previously it was the Rochester Institute of Technology.

Teaching Faculty

The 304 full-time faculty teach in 35 academic departments that range in size from Mathematics with 32

full-time tenure track members, to Human Ecology or Fire Protection Technology with one each. There are 279 tenured; 25 not tenured; 190 are male, 114 female; 6.1% tenured minority.

The budgeted student-faculty ratio is 18.1. Ninety-two percent of instruction is done by full-time faculty, 22% of this in overload. Overload teaching assignments are based on faculty

qualifications, interest, and in some departments, rotation lists; other departments rely on seniority.

Faculty credentials:

10% -- doctorate
72% -- master
2% -- professional (JD, LLD, DMD)
14% -- bachelor
2% -- associate
1% -- other (certificate, diploma, etc.)

Faculty rank:

36% -- Professor
29% -- Associate Professor
22% -- Assistant Professor
13% -- Instructor

Minorities

Minorities make up 13.1% of the MCC student population and 13.4% of Monroe County population.

	<u>1988</u>	<u>1985</u>	<u>1980</u>	<u>% Monroe Co.</u>
Blacks	8.2%	7.6%	9.3%	10.0 %
Hispanic	2.4%	2.1%	1.5%	2.4%
Asian	2.0%	2.0%	0.9%	NA
Native Am.	0.5%	0.4%	0.4%	NA

Auto Technology and the Engineering Technology Departments have the lowest proportion of blacks (4.4%) and Hispanics (1%), followed by the Health Sciences (6.2% black and 1.2% Hispanic). Engineering Technology has a high proportion of Asians (4.5%).

The Social and Behavioral Science Division has an above average proportion of blacks and Hispanics; Arts and Humanities and Natural Science and Math have a high proportion of Asians.

Eleven percent of MCC personnel are minority and distributed in the following positions:

<u>percentage</u>	<u>positions</u>
10.1%	executive/administrative/managerial
3.4	advisor/technical assistant/paraprofessional
31.0	faculty
25.9	civil service
29.6	part-time faculty and staff

Facilities

According to the methodology used by the State University of New York, MCC has a current deficit of 313,695 gross square feet of space. A four-phase Master Plan now under consideration would provide 300,000 square feet of new construction and extensive renovations to the 700,000 square feet in the eleven existing buildings.

To make maximum use of campus space for teaching/learning activities, those departments that do not have direct day-to-day contact with students are located in leased space off-campus. MCC currently spends \$1 million yearly for leased space.

Plans are under way to purchase the off-campus building at 3055 Townline Road that currently houses the Criminal Justice and Public Safety Center.

MCC and the County of Monroe are conducting feasibility studies to determine if MCC should have a presence in downtown Rochester and, if so, what that configuration should be.

Accreditations

Middle States Association, Nursing (NLN), Radiologic Technology (AMA), Dental Hygiene (ADA), Medical Record Technology (AMA), Electrical Engineering Technology, Electronics (TAC)

2 + 2 Agreements

Nazareth College; Niagara University; Rensselaer Polytechnic Institute; Rochester Institute of Technology; St. Bonaventure University; St. John Fisher College; University of Rochester; and the State University of New York Colleges at Brockport, Fredonia, Geneseo, and Oswego

Fundraising

In 1988 the MCC Foundation raised \$1,032,136, including \$94,000 from alumni. Among the 30 SUNY community colleges, MCC ranks first in corporate, first in alumni, and second in total giving.

In 1987-88, the Grants Office brought 6.6 million dollars in grants and contracts to the college.

FINAL THOUGHTS

This scan is designed to serve as initial information for the many committees, offices, and departments throughout the college that are involved in various forms of planning.

To contemplate the range of factors and trends that influence MCC can be daunting, enough to make us look enviously at the frog in the bottom of the well. An isolated, three-foot environment might at least be knowable and manageable.

Certain of the data in this scan seem unmanageable, even contradictory. For example:

- Although the national high school dropout rate has not changed in 20 years, work force demands have changed drastically, making that rate intolerable. This is especially true for Monroe County, where 80% of jobs require post-secondary education as a minimum credential.
- At the same time the population growth rate in the 16-24 age range is declining (The number of 18-year olds in Monroe County will decrease by 1/3 by 1991), the work force participation must grow by 4.8% to be economically viable. Not only are colleges and the work force seriously affected, so is the military; 1988 was the first year the military did not meet its recruitment target.
- A larger percentage of school populations is minority and immigrant, students that have historically not done well in our education system. Minorities do not graduate from high school as frequently as do whites. Although minority group members who complete high school go on to college at comparable rates, they are less likely to complete post-secondary education. This means fewer minority become teachers, physicians, engineers, accountants, or practitioners of one of the other 28 professions licensed by the New York State Regents.⁴⁸

Many of these are new situations, requiring new strategies and new efforts. Perhaps daunting challenges are energizing. Certainly, MCC has a history of successfully meeting changing conditions. We know we have the wit and the will. Now, we are working on the strategies.

APPENDIX A



Industrial
Management
Council

April 25, 1989

To: Survey Participants of the
IMC Human Resources Group

Enclosed is a summary of the April 1989 IMC Survey of Job Vacancies. One hundred forty-three (143) IMC companies, employing over 114,000 people, participated in the survey.

Overall demand continues to be high with total vacancies nearing 2500, the highest since April 1985. The demand for personnel with four or more years of higher education appears to be remaining constant at approximately 700 vacancies. Positions requiring at least two years of continued education show significant increase in demand. The most notable increase being the Clerical Personnel vacancies which more than tripled over last year. The Unskilled Personnel category (positions requiring no advanced education) appears also to be an area of high demand with vacancies more than doubling over last year.

Thank you for your participation. We welcome your comments and suggestions on the scope, presentation and usefulness of the survey data. Please take a few moments to complete and return the enclosed comments/suggestions form, or contact me directly at the IMC office, 244-1800.

Best regards,

A handwritten signature in cursive script, reading 'Teri L. Stanwix'.

Teri L. Stanwix, Director
Human Resource Information

TLS:fdm
Enclosures

INDUSTRIAL MANAGEMENT COUNCIL
Rochester, New York

SURVEY OF JOB VACANCIES

	<u>Apr. 1989</u>	<u>Apr. 1988</u>	<u>Apr. 1987</u>
Number of Industrial Firms Participating	<u>143</u>	<u>66</u>	<u>71</u>
Total Employment	<u>114,254</u>	<u>80,000</u>	<u>94,426</u>
Total Number of Job Vacancies	<u>2,456</u>	<u>1,447</u>	<u>521</u>

JOB VACANCIES BY CATEGORY AND OCCUPATION

PROFESSIONAL PERSONNEL

Accountants/Auditors/Financial Analysts	<u>48</u>	<u>53</u>	<u>43</u>
Marketing/Sales/Related Professional Personnel	<u>68</u>	<u>80</u>	<u>62</u>
Programmers, Systems Analysts	<u>114</u>	<u>123</u>	<u>25</u>
Other Business Professional Personnel	<u>57</u>	<u>-</u>	<u>-</u>
Biologists	<u>12</u>	<u>-</u>	<u>-</u>
Chemists/Scientists	<u>42</u>	<u>45</u>	<u>20</u>
Mathematicians	<u>6</u>	<u>8</u>	<u>4</u>
Physicists	<u>3</u>	<u>9</u>	<u>3</u>
Engineers, Chemical	<u>28</u>	<u>31</u>	<u>11</u>
Engineers, Electrical	<u>59</u>	<u>88</u>	<u>22</u>
Engineers, Electronic & Computer Science	<u>35</u>	<u>58</u>	<u>9</u>
Engineers, Manufacturing/Industrial	<u>17</u>	<u>25</u>	<u>2</u>
Engineers, Mechanical	<u>25</u>	<u>35</u>	<u>6</u>
Engineers, Optical	<u>3</u>	<u>11</u>	<u>2</u>
Engineers, Other	<u>29</u>	<u>32</u>	<u>9</u>
All Other Professional Personnel	<u>225</u>	<u>115</u>	<u>84</u>
<u>Total Professional Job Vacancies</u>	<u>771</u>	<u>713</u>	<u>302</u>

Apr. 1989 Apr. 1988 Apr. 1987

TECHNICAL PERSONNEL

Drafter, Electrical	<u>1</u>	<u>2</u>	<u>4</u>
Drafter, Mechanical	<u>18</u>	<u>11</u>	<u>2</u>
Technicians, Electrical	<u>39</u>	<u>24</u>	<u>10</u>
Technicians, Electronic	<u>34</u>	<u>17</u>	<u>0</u>
Technicians, Mechanical	<u>9</u>	<u>5</u>	<u>0</u>
Technicians, Data Processing	<u>7</u>	<u>1</u>	<u>0</u>
Technicians, Chemical	<u>58</u>	<u>36</u>	<u>12</u>
Computer Operators	<u>9</u>	<u>10</u>	<u>7</u>
Other Technical Personnel	<u>113</u>	<u>49</u>	<u>12</u>
<u>Total Technical Job Vacancies</u>	<u>288</u>	<u>155</u>	<u>47</u>

CLERICAL PERSONNEL

General Office Clerks and Typists	<u>88</u>	<u>37</u>	<u>2</u>
Office Machine Operators	<u>0</u>	<u>0</u>	<u>0</u>
Secretaries	<u>148</u>	<u>44</u>	<u>8</u>
Word Processing Operators	<u>10</u>	<u>9</u>	<u>4</u>
Data Entry Clerks, Key punch Operators	<u>32</u>	<u>13</u>	<u>2</u>
Other Clerical Personnel	<u>228</u>	<u>45</u>	<u>40</u>
<u>Total Clerical Job Vacancies</u>	<u>506</u>	<u>148</u>	<u>56</u>

	<u>Apr. 1989</u>	<u>Apr. 1988</u>	<u>Apr. 1987</u>
<u>SKILLED PERSONNEL</u>			
Machine Repairers	<u>17</u>	<u>3</u>	<u>3</u>
Machine Builders	<u>4</u>	<u>0</u>	<u>0</u>
Maintenance Crafts	<u>16</u>	<u>11</u>	<u>2</u>
Tool and Die Makers, Model Shop and Process Machinists	<u>21</u>	<u>34</u>	<u>4</u>
Welders	<u>9</u>	<u>3</u>	<u>1</u>
Optical Grinders, Polishers and Other Skilled Optical Personnel	<u>1</u>	<u>0</u>	<u>0</u>
Apprentices	<u>10</u>	<u>3</u>	<u>0</u>
Other Skilled Personnel	<u>31</u>	<u>14</u>	<u>3</u>
<u>Total Skilled Job Vacancies</u>	<u>109</u>	<u>68</u>	<u>13</u>
<u>SEMI-SKILLED PERSONNEL</u>			
Machine Operators	<u>168</u>	<u>129</u>	<u>17</u>
Assemblers	<u>157</u>	<u>84</u>	<u>27</u>
Inspectors	<u>37</u>	<u>23</u>	<u>4</u>
Trainees for Semi-Skilled Jobs	<u>10</u>	<u>1</u>	<u>6</u>
Other Semi-Skilled Personnel (including stockkeepers, dispatchers, etc.)	<u>98</u>	<u>46</u>	<u>9</u>
<u>Total Semi-Skilled Job Vacancies</u>	<u>470</u>	<u>283</u>	<u>63</u>
<u>UNSKILLED PERSONNEL</u>			
<u>Total Unskilled Job Vacancies</u>	<u>115</u>	<u>56</u>	<u>27</u>
<u>ALL OTHER PERSONNEL</u>			
<u>Total All Other Job Vacancies</u>	<u>197</u>	<u>24</u>	<u>13</u>
<u>GRAND TOTAL OF JOB VACANCIES</u>	<u>2,456</u>	<u>1,447</u>	<u>521</u>

APPENDIX B

(number of people under age 18 in thousands, state, 1990 to 2010, ranked by percent minority

and percent minority, by in 2010)

Diverse Destiny

By 2010, 38 percent of Americans under the age of 18 will be black, Hispanic, Asian, or other minority. In the biggest states—California, New York, Texas and Florida—minority children will be a majority by 2010.

Note: Minorities include blacks, Asians, and other races as well as white Hispanics.

Source: American Demographics estimates and "Projections of the Population of States by Age, Sex, and Race: 1998 to 2010," by Signe I. Wrenigan, Current Population Reports, Series P-23, No. 1017, Bureau of the Census, 1998.

	1990		2000		2010		CHANGE from 1990 to 2010	
	all children under 18	percent minority	all children under 18	percent minority	all children under 18	percent minority	all children under 18 (percent change)	minority share (percentage point change)
Total	64,031	30.7%	65,717	34.0%	62,644	38.2%	-2.2%	7.5
District of Columbia	121	89.7	111	90.9	105	93.2	-13.2	3.6
Hawaii	284	75.5	296	76.4	310	79.5	9.2	4.0
New Mexico	487	67.0	569	70.0	595	76.5	22.2	9.5
Texas	5,065	47.1	5,415	51.9	5,418	56.9	7.0	9.8
California	7,581	46.4	8,402	51.4	8,520	56.9	12.4	10.5
Florida	2,807	46.4	3,244	48.6	3,270	53.4	16.5	7.0
New York	4,246	39.9	4,189	45.8	3,862	52.8	-9.0	12.9
Louisiana	1,324	43.9	1,229	47.3	1,118	50.3	-15.6	6.4
Mississippi	800	47.6	791	48.8	749	49.9	-6.4	2.4
New Jersey	1,861	36.6	2,037	40.2	1,935	45.7	4.0	9.0
Maryland	1,149	38.5	1,267	40.2	1,220	42.7	6.2	4.2
Illinois	3,031	32.7	2,947	36.8	2,684	41.7	-11.4	9.0
South Carolina	946	39.9	968	39.6	931	40.1	-1.6	0.2
Georgia	1,804	36.2	2,056	36.4	2,116	37.9	17.3	1.7
Arizona	1,015	32.3	1,191	33.6	1,229	37.1	21.1	4.8
Delaware	165	29.7	179	32.9	177	37.0	7.3	7.3
Alabama	1,119	34.5	1,111	34.8	1,046	35.6	-6.5	1.1
Nevada	257	27.4	286	30.0	288	33.4	12.1	6.0
North Carolina	1,635	32.3	1,723	32.3	1,684	33.2	3.0	0.9
Colorado	886	25.3	924	28.9	893	33.1	0.8	7.7
Alaska	176	27.5	201	29.5	208	32.7	18.2	5.2
Virginia	1,485	28.5	1,607	29.4	1,549	31.1	4.3	2.6
Michigan	2,440	22.8	2,347	25.5	2,094	29.2	-14.2	6.3
Oklahoma	873	22.1	838	24.8	795	27.5	-8.9	5.4
Connecticut	751	20.8	781	23.4	715	27.0	-4.8	6.1
Arkansas	643	25.5	621	26.1	576	26.8	-10.4	1.3
Tennessee	1,237	23.2	1,204	24.1	1,125	25.3	-9.1	2.1
Ohio	2,783	16.7	2,631	18.6	2,349	20.8	-15.6	4.2
Wyoming	151	12.3	137	17.8	125	20.2	-17.2	7.9
Missouri	1,330	17.3	1,331	18.5	1,236	19.9	-7.1	2.6
South Dakota	200	14.4	193	16.2	180	19.8	-10.0	5.3
Washington	1,173	14.7	1,163	16.9	1,098	19.5	-6.4	4.8
Kansas	654	14.5	633	17.1	585	19.3	-10.6	4.9
Indiana	1,456	14.8	1,382	16.7	1,242	19.2	-14.7	4.3
Pennsylvania	2,765	15.4	2,609	16.7	2,260	18.7	-18.3	3.3
Rhode Island	228	12.9	236	15.5	222	18.6	-2.6	5.7
Massachusetts	1,315	13.5	1,368	15.5	1,267	18.2	-3.7	4.7
Oregon	692	11.8	677	14.1	637	16.8	-7.9	4.9
Wisconsin	1,262	11.5	1,208	13.7	1,067	16.6	-15.5	5.1
Montana	220	10.9	198	13.2	181	15.4	-17.7	4.5
Kentucky	979	11.3	906	12.6	818	14.1	-16.4	2.8
Nebraska	423	9.4	398	10.8	358	13.1	-15.4	3.6
Utah	673	9.3	715	11.2	740	12.4	10.0	3.1
Minnesota	1,131	7.7	1,138	9.1	1,042	11.2	-7.9	3.5
Idaho	309	7.2	291	9.4	275	11.0	-11.0	3.8
North Dakota	182	8.3	157	8.6	138	10.0	-24.2	1.7
Iowa	715	5.6	622	7.0	529	8.7	-26.0	3.1
West Virginia	469	5.9	401	6.7	344	7.3	-26.7	1.4
New Hampshire	284	3.9	329	4.8	317	5.5	11.6	1.6
Vermont	144	3.8	150	4.7	138	5.4	-4.2	1.6
Maine	305	2.8	310	3.0	284	3.1	-6.9	0.3

ENDNOTES

1. American Demographics, January, 1989.
2. David T. Kearns, "An Education Recovery Plan for America," Phi Delta Kappan, April, 1988.
3. Bulletin, U. S. Department of Education Office of Educational Research and Improvement, November, 1986, CS 86-311b
4. Parental Attitudes Toward Pre-College Planning, The College Scholarship Service, division of the College Entrance Examination Board
5. "Nursing Dearth Forces Hospitals to Examine More than Patients," Insight Magazine, July 11, 1988.
6. Bickley Townsend, "What's at Stake?" American Demographics, August, 1988, from Toward a More Perfect Union: Basic Skills, Poor Families, and Our Economic Future, Gordon Berlin and Andrew Sum, Ford Foundation, Office of Reports, February, 1988.
7. Education Commission of the States, "Transforming the State Role in Undergraduate Education," Chronicle of Higher Education, July 30, 1986
8. Geraldine A. Evans, "High School Dropout Brief," Supplement to AACJC letter No. 238, April 21, 1987. Graduation rate is based on the number of diplomas awarded by public schools each year compared to the ninth grade enrollment figures for the same group four years earlier.
9. Fred M. Hechinger, "Competing for Students," New York Times, March 31, 1987
10. "Study Probes College Options," Community College Week, October 24, 1988. Report on study by the Office of Education Research and Improvement at the U.S. Department of Education
11. American Demographics, May, 1989, p.13
12. One Third of a Nation, Commission on Minority Participation in Education and American Life, a project of the American Council on Education and the Education Commission of the States, 1988.
13. Notes on Leobardo F. Estrada, "Anticipating the Demographic Future: Dramatic Changes Are On the Way," Change, May/June 1988, pp. 14-19
14. Chronicle of Higher Education, May 28, 1986.

15. "Minorities in Urban Community Colleges: Tomorrow's Students Today," Report of the Urban Community Colleges Commission, AACJC, Feb., 1988.

16. Chronicle of Higher Education, January 25, 1988, p. A17.

17. David Pearce Snyder, "Learning for Life in Revolutionary Times," Journal of Studies in Technology Careers, Spring, 1987, p. 95

18. Kearns

19. Richard Hirsch and Diana Waterman, "Trade Bill Opportunities for Community Colleges," AACJC Journal, Dec/Jan 1988-89.

20. Louis Uchitelle, "Trade Barriers and Dollar Swings Raise Appeal of Factories Abroad," New York Times, March 26, 1989

21. American Demographics, July 1988, p. 15.

22. Marvin J. Cetron, Wanda Rocha, and Rebecca Luckins, "Into the 21st Century," The Futurist, July-August, 1988.

23. American Demographics, July, 1987, p.20

24. Tamara Goldman, "Special Report: The Mature Market," Marketing Communications, February, 1989, p. 19

25. SUNY Symposium on Family Saving and Debt Management for Higher Education Financing

26. Vincent Carroll, editorial page editor of Rocky Mountain News, September 12, 1988

27. Joe Schwartz, "Black Clout," American Demographics, January, 1989.

28. Monograph, New York's Hidden Asset: Colleges that Work, Jamestown Community College Office of Public Relations, 1989.

29. New York's Hidden Asset

30. The Regents Statewide Plan for the Development of Postsecondary Education in New York State, 1988, Volume 1, University of the State of New York, State Education Department, p. 10.

31. New York State Education Department, Supplement to New York: The State and Its Educational System by Harold L. Hodgkinson, April, 1987.

32. SED supplement

33. Frank G. Pogue, State University of New York News Release, January 26, 1988.
34. Chancellor's Task Force on Community Colleges, July, 1986.
35. Chancellor's Task Force
36. Phil Ebersole and Mary Lynne Vellinga, "Great Exodus Feared," Democrat and Chronicle, August 22, 1988.
37. Center for Governmental Research for COMIDA
38. Salley Thornton, "Chamber of Commerce Acts as Business Advocate," Wolfe Publications Progress Edition, March 7, 8, 9, 1989.
39. High Technology of Rochester, NY Newsletter, November, 1988, p. 12.
40. Rochester Chamber of Commerce Business Trends Committee
41. New York State Labor Department
42. "Economic Review Letter," Rochester Area Chamber of Commerce and the Center for Governmental Research, Inc., May, 1988.
43. Phil Ebersole, "Exports Zoom, Economy Booms," Democrat and Chronicle, April 25, 1988.
44. Thornton
45. Ebersole and Vellinga
46. Jim Case, Director, U. of R. Career Services and Placement, reported in D&C. August 22, 1988, p. 5D
47. Beverly Gburski, Director, RIT Office of Cooperative Education and Placement, reported in D&C, August 22, 1988, p. 5D
48. Regents Statewide Plan for the Development of Post-Secondary Education in New York State, 1988, vol. 1